63:Simmons et al G-6 (1941-1961) 1954
MI Middle East
SYRIA MD1

747 The Red Crescent Society carries on a campaign against tuberculosis throughout the country, and operates a tuberculosis dispensary in Damascus. The Goutte de Lait Society of Damascus supports infant welfare services in association with the government's maternal and child health center.

The Near East Foundation initiated a comprehensive rural demonstration program in villages near Damascus in 1946, in conjunction with the Ministries of Agriculture, Education and Health. In addition to activities for the improvement of agriculture, it operates 5 child health centers, each serving 10 to 20 villages. Courses are conducted at the largest center for the training of local village midwives in improved technics of midwifery. When the program was expanded in 1951, the Foundation planned for the development of co-ordinated maternity and child health services, including well-child clinics and home visiting, in the village centers and the organization of a special course for the training of rural sanitarians. Since 1949, it has participated with 747 744 the government health authorities and the successive agencies working for the relief of the Palestinian refugees in a malaria control program, based on residual spraying with DDT preparations, or Gammexane, in villages in the Damascus region. In 1950, it co-operated with the Ministry and the Trans-Arabian Pipeline Company in residual spraying operations in villages and refugee camps around Der'a, in Hauran *muhafazat*.

747 648 Hospitals and related health work are conducted by various mission societies in Damascus, Aleppo and Deir ez Zor. Health and medical care services are also provided by the larger industries for the benefit of their employees. The United Nations Relief and Works Agency carries on public health and medical programs in the refugee centers in southern and western Syria.

Medical Institutions

743 Hospitals and Dispensaries. In 1951,

of the babies treated at the maternity and child health center in Damascus suffer from intestinal infections. Epidemics of diarrheal disease often coincide with the ripening of the apricot crop. The ready contamination of this thin-skinned fruit by flies and other insects accounts for the local designation of the early summer diarrheas in the fruit-growing districts as *mish mish* (apricot) disease.

Cholera. Serious outbreaks have accompanied the introduction of cholera in the past, but the disease was absent from Syria from 1928 to 1947, shortly after the epidemic in Egypt. On December 19, 1947, cholera was reported from 2 adjacent villages in the province of Hauran, on the road from Palestine to Damascus. At the same time, cases occurred in 3 villages in the irrigated plain of the Al Ghouta, within 3 or 4 miles of Damascus. Although 45 cases, with 18 deaths, were reported officially, it was generally believed that the actual incidence totaled at least 77 cases.

Quaraptine measures were promptly imposed in Hauran and Damascus provinces, and all persons entering or leaving those regions were required to possess certificates of immunization against cholera. Over one and one half million individuals were inoculated with cholera vaccine in the vicinity of Damascus, as well as in the affected districts of Hauran and in the city of Aleppo. Supplies and assistance were furnished the Ministry of Health by the World Health Organization, the Near East Foundation and the Egyptian and Lebanese governments. Vaccine was also provided jointly by the Arabian American Oil Company and Trans-Arabian Pipeline Company. No cases were reported after the initial outbreaks, and on January 17, 1948, Syria was declared free from the disease. The exact origin of the epidemic was never definitely established.

Helminthiases. ANCYLOSTOMIASIS. Hookworm infection, caused by *Ancylostoma duodenale*, is prevalent among the agricultural workers in foci along the banks of the

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761 369 164 Comparative rates in urban and rural communities were determined in a series of tests on unorganised groups in the city and two adjacent farming districts. In Damascus, positive reactions to tuberculin were given by 47.7 of the boys and 40.8 per cent of the girls tested at 15 years of age. At 20 to 25 years of age, positive reactions were obtained in 86.7 per cent and 77.4 per cent, respectively; at 40 to 45 years of age, in 95.6 and 86.6 per cent, respectively. In the rural communities the positive reaction rates were consistently lower, but approached the urban levels in the older age groups. Among individuals at 15 years of age, 51.6 per cent of the boys and 27.2 per cent of the girls reacted to tuberculin in one area, and 18.1 per cent of the boys and 21.2 per cent of the girls, in another. At 40 to 45 years of age, the proportion of positive reactors averaged 80 per cent in the first series and 50 to 100 per cent in the second.[48]

744 751 747 Within recent years the Ministry of Health has embarked upon a tuberculosis control program. In January, 1950, a tuberculin testing and BCG inoculation campaign was organized under the auspices of the United Nations International Children's Emergency Fund and associated organizations, which was taken over by the Ministry in September. Surveys have been carried out in most of the provincial capitals and surrounding rural districts, and the Ministry contemplates the gradual extension of the campaign to cover the populations in all parts of the country. In the course of the investigations completed in 7 provinces between January and September, 1950, almost 417,000 persons were tuberculin tested, and over 188,000 were inoculated with BCG vaccine. The majority were schoolchildren, although miscellaneous population groups of all ages were also included. The proportion of positive reactors in the different provinces ranged from 23 per cent in Jebel ed Druz (As Suwaydah) to 42 per cent in Aleppo.

659 361 751

758 743 The diagnostic and the treatment facili-

of rabid dogs, but wolves, hyenas, jackals, rats and other animals are sometimes implicated. Prophylactic treatment is provided by the Ministry, and a special division for the preparation of antirabic vaccines is incorporated in the central laboratory in Damascus. From 140 to 250 persons were treated annually in the 4 years 1948-51.

Other Infections. Tetanus is endemic, and occasional cases are observed. Anthrax is ensootic among the sheep, and human infections sometimes occur in the agricultural areas. Sporadic cases of Weil's disease are reported.

Diseases Spread by Arthropods

Malaria. Malaria is a disease of major public health and economic importance, since it is endemic or hyperendemic in all populous sections of the country. The prevalence of the disease is directly related not only to the physical geography of the different regions, but to the degree and the type of cultivation. The most seriously affected foci are the plains around Damascus and Aleppo, the Orontes valley from Hama to the Turkish frontier, the irrigated zones bordering the Belikh and the Khabour rivers and their tributaries, and the swampy districts of Hauran province. Universally high infection rates are experienced during epidemic years, even in areas of low endemicity.

No large-scale surveys have been attempted, but accumulated studies provide rough estimates of the extent of infection in localized areas. Prior to the development of a program for the control of malaria by the Ministry of Health and the Near East Foundation in 1949-50, the spleen index among children under 10 years of age in the villages around Damascus ranged from 40 to 80 per cent, with the highest rates in villages on the periphery of the Outaybeh swamps in the eastern part of the oasis. In the vicinity of Homs, the spleen rates normally average 50 to 70 per cent.

In the course of joint surveys made by the malariologists of the United Nations

Relief and Works Agency for Palestine Refugees and the Ministry in the Khabour and the Belik river basins in 1950,[8, 9] blood examinations were performed on small representative samples of the population. All age groups were included, although the majority of persons tested were under 15 years of age. The parasite rates averaged about 33 per cent in villages in the Belikh valley, while in the areas under perennial irrigation along the Khabour River and its tributaries, they varied from 33 to 94 per cent. In the rain-irrigated districts northeast of Hassetché, the rates declined to from 12 to 16 per cent. In many localities the malaria problem has been aggravated by the introduction of rice cultivation. In some, as in Ajaja, cultivation had to be abandoned, and in others, it is prohibited within a 2-mile radius of the villages.

The malaria season extends from April to November, with peaks of prevalence in July and October, but some transmission occurs throughout the year in most malarious regions. The relative proportion of *Plasmodium vivax* and *P. falciparum* infections varies according to the season and from place to place. *P. vivax* is usually responsible for 75 to 80 per cent of the cases of malaria in the Damascus area. *P. falciparum* and *P. vivax* were identified with about equal frequency, however, in the 1950 surveys in the Belikh and the Khabour valleys. In general, *P. vivax* predominates during spring and early summer, but is superseded by *P. falciparum* toward the end of the malaria season. *P. malariae* infections are rarely encountered.

Malaria control measures are undertaken by the municipal authorities in Damascus, Aleppo and a few other towns. Control programs, based upon residual spraying with DDT preparations or Gammexane, are conducted in towns and villages in limited areas by the Ministry of Health, often in conjunction with other agencies. In 1950, they covered villages in Damascus and Hauran provinces, the town of Latakia and a few localities in Jebel ed Druz. The most exten-

63:Simmons et al G-5 (1941-1951) 1954
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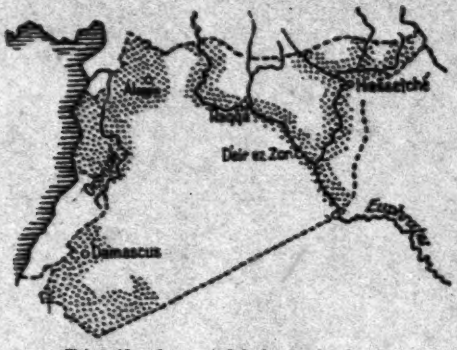

Distribution of Malaria in Syria

sive work has been carried on, in co-operation with the Near East Foundation, in the agricultural districts around Damascus, where 224 villages with over 180,000 inhabitants were protected in 1949-50. A marked reduction in the number of cases has been noted in all the areas treated. Successive examinations of over 500 children in 16 treated villages near Damascus revealed a decrease in spleen rates of from 78 per cent in 1950 to 20 per cent in 1951.[8] A malaria control program was inaugurated in the Homs district in 1952, under the auspices of the World Health Organization. *Anopheles sacharovi* and *A. claviger* are the principal vectors in the Damascus region; *A. sacharovi* and *A. superpictus*, in the river valleys in the northeast.

Rickettsial Infections. Localized outbreaks of louse-borne typhus are recurrent during the winter and the spring months, particularly in the congested quarters of the towns and the cities and among the nomadic tribes. Over 1,900 cases were reported in 1942, when the acute shortages associated with the war created conditions conducive to the spread of the infection. Since that date no more than 30 to 95 sporadic cases have been recorded in any one year. Control measures, including deverminization procedures and the immunization of the exposed populations, are enforced by the health authorities in affected areas.

No differentiation is made in the official

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